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telephony

AUGUST 5, 1985 THE JOURNAL OF TELECOMMUNICATIONS SINCE 1901

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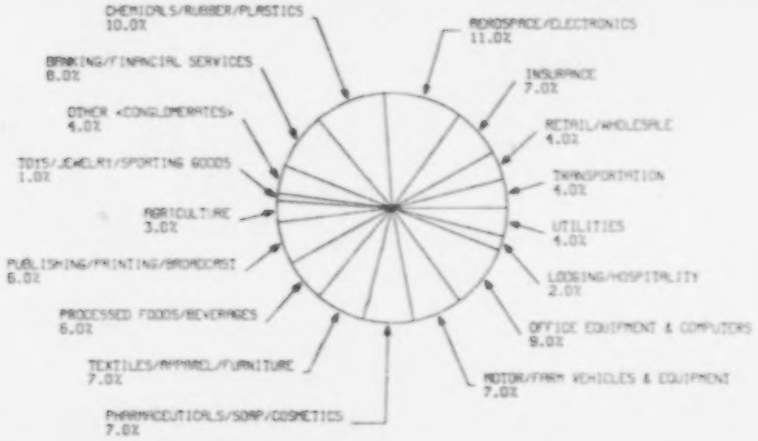
Published by TELEPHONY PUBLISHING CORP., 55 E. Jackson, Chicago, IL 60604 Telephone 312/922-2435; TWX 910 221 1058

European Bureau, 136 Broomfield Rd., Chelmsford, Essex CM1 1RN, England. Telephone Chelmsford (0245) 58257. Telex 995801 GLOTLX-G.

TELEPHONY (ISSN 0040-2656/83-0 +$1.50) is published weekly by Telephony Publishing Corp. Officers of Telephony Publishing Corp. are Dan S. Fargo, President; Leo Anderson, Executive Vice President; Del Myers, Robert Wehofer and Janice R. Drummond, Vice Presidents. Postmaster: Please send form 3579 to Subscription Dept. TELEPHONY, 55 E. Jackson Blvd., Chicago, IL 60604. Second class postage paid at Chicago, Ill., and at additional mailing offices. Single copies (payable in advance) U.S. $3.00 ea. Outside U.S. add $1.00 ea. Subscriptions: $33 one year. Outside U.S. $59 per year. Subscription rates apply to employes of operating telephone companies; telephone consultants; contractors; interconnect companies; specialized common carriers; military, government, associations; private communications users; schools; libraries. Change of address: include old address as well as new address. Attach issue label if possible. Allow 4 weeks for change to become effective. Copyright 1985 by Telephony Publishing Corp. Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by Telephony Publishing Corp. for libraries and other users registered with the Copyright Clearance Center (CCC) provided that the fee of $1.50 per page is paid directly to CCC, 21 Congress St., Salem, MA 01970. Special requests should be addressed to Telephony Publishing Corp.

Big business = big bucks in telecommunications

Figure 1 Fortunes: return by industry group



The Fortune results have been derived from the first 10% of return from the headquarter location of the Fortune 1000 industrials and Fortune 400 service organizations that is representative of the Fortunes' headquarters distribution throughout the United States.

CZATDANA INAN,
MARKET RESEARCH DIRECTOR

BIG BUSINESS is paying its own way for the opportunity to choose among vendors of equipment and network services. It is an opportunity most big users fervently want. Large businesses have long had the voice and data communications traffic volume to create efficiencies in leased and purchased systems. They now have the in-house expertise. Some even have become vendors themselves, such as Eastman Kodak, Citibank, General Electric, International Harvester and Sears, which are offering access space on their own networks. Most, however, are concentrating on using telecommunications as a tool to achieve the objectives of their primary business.

Today's business user is on the frontier of an information society. Nearly half of the large PBXs purchased in 1983 and more than half of those purchased in 1984 were capable of handling data. Only 1 office in 20 in the U.S. today is equipped with a personal computer. That is expected to grow to one in two offices by 1989 with the voice/data personal computer-based workstation commonplace. Equipment and network service suppliers hope that all of these computers will be communicating computers—increasing the traffic on the network.

ICA (International Communications Assn.) surveys, conducted 2 years apart, calculate the overall average for telecommunications expenses across U.S. industry as 0.74% of sales and 0.95% of expenses, up from 0.51% and 0.65%, respectively, in 1981. This is an annualized increase of more than 13% based on sales and expenses. Most businesses can justify one full-time salaried staff professional for each $1.2 million in annual expenditures for telecommunications equipment and network services and one hourly person for each $1.8 million, excluding switchboard operators.

These factors translate into multi-billion dollar budgets. The 500 largest Fortune industrials, for example, posted 1984 profits of $86.4 billion on sales of $1758.7 billion. They spent $13 billion to $16 billion in 1984 for telecom equipment and network services, based on 1983 factors. Indeed, $16 billion is probable because these industrials contain the greatest concentration of multinationals among the Fortunes. The factors portray the typical 500 Industrial with a $32 million telecom budget and a staff of 21 full-time telecommunications professionals.

Business has every incentive to deploy in-house management when annual telecommunications expenditures reach $1.5 million. Small businesses (under 80 lines) are turning to professional consultants as voice and data transmission technology and choices become increasingly more complex. Users of large interstate, and increasingly, intrastate networks already

Continued on page 37

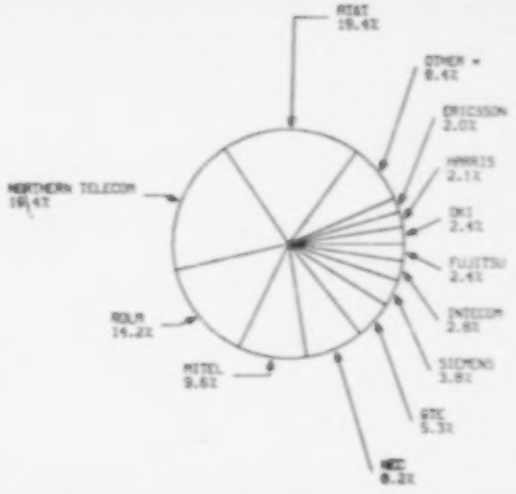
manage their telecommunications functions in-house. The Fortune industrials and service organizations exemplify users of large interstate networks while the top 20% of hospitals (over 300 beds) and universities (4-year institutions with more than 2500 students) exemplify large intrastate users. Telecom management typically operates from headquarter and main campus sites. But interstate and intrastate users markedly differ in their current emphasis on integrated planning.

Only 25% of the major universities and 12% of the major hospitals have integrated their voice and data communications functions, according to Telephony Publishing Corp.'s fourth annual 1984 survey of large users. This year's survey showed little increase in voice/data integration in hospitals and universities while the percentage climbed to 72% among the industrials and 60% among the service organizations. This is well in line with the 1986 levels of 75% and 64%, respectively, predicted by the Fortune respondents in the 1984 survey. A total of 92% of the industrials and 73% of the service organizations will be nearing completion of their voice/data integration during 1986-87. The current planning approach is primarily responsible for the spreads in budget size, staff size and training between interstate and intrastate users. The Fortunes are setting the pace for organizations that have yet to begin full-scale integrated planning.

Setting the pace

The Fortunes' decisions are determining the outcome of the war between manufacturers for office controller supremacy. Manufacturers on both sides are admitting they cannot be all things to all users, International Business Machines Corp. (IBM) has acquired Rolm; British Telecom is in the process of acquiring Mitel; and GTE Communications Systems is expected to announce a joint venture this fall with a major office automation supplier. American Telephone & Telegraph Co. (AT&T) has a stake in Olivetti and there are scores of compatibility agreements, targeting the voice/data market. Having good equipment is not enough in a consolidating market. Equipment must be sold to the market. Users with sophisticated requirements—backed by multi-million dollar budgets—will determine who will succeed.

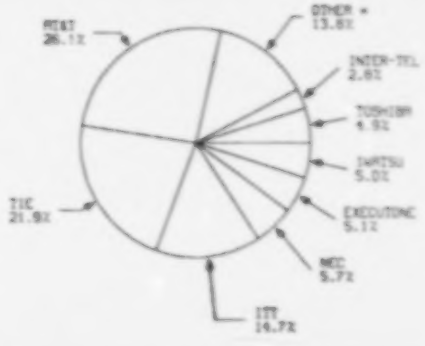
Figure 2 1984 Total PBX shipments: 4,847,945 lines



Source: Northern Business Information, New York, NY

Other: 1.7% United Technologies, 1.4% Solid States Systems and Hitachi, 0.3% IPC, 2.3% all others.

Figure 3 1984 Total KTS shipments: 4,737,580 stations



Source: Northern Business Information, New York, NY

Other 1.9% Fujitsu, 1.7% Isotec, 1.5% Walker, 1.2% Pan Orient, 0.9% Telrad and Northern Telecom, 0.8% Crest and R-Tec Systems, 0.7% Thomson-CSF, 0.6% Tellone and Teletec, 0.5% Northcom, 0.4% Eagle, 0.3% Tone Commander, 0.2% PKS Communications and Gai-tronics, 0.1% Comdial, 0.6% all others.

The war for office controller supremacy is over, according to the 140 Fortunes selected for analysis in Telephony's 1985 large user survey (Figure 1). They are concentrating on switching data through their PBXs and expect 15% to 20% of their lines to be data by 1987. Both local area networks (LANs) and PBXs are seen as data handling solutions; existing coaxial cable and twisted pairs account in part for this. But LANs will be the favored solution

for computer-to-computer communications; PBXs, for dial-up applications. Consolidation of data networks has current priority over the integration of voice and data networks among more than half of the industrials and service organizations.

The Fortunes are determined to call their own shots in a voice/data environment. Median average staff size is 12 full-time professionals, with 9 out of 12 having voice and data communications training and experience. Capital expenditure requests typically cover 3 years into the future, including estimated paybacks. In addition to keeping treasurers happy, the planning cycle allows implementation of controls to ensure the anticipated benefits flowing from capital expenditures will be realized.

Approximately 75% of industrial and 85% of service organization total annual expenditures for equipment and network services are allocated by headquarter-based telecom management. The difference is due to the weight of multinationals among the industrials and banks among the service organizations. U.S. banking regulations currently discourage nationwide interstate banking and so the expansion of major banks and their need for in-house controlled interstate networks.

Equipment acquisitions account for approximately 40% of total budgets. Determination of need for new, replacement and additional equipment, its evaluation and vendor selection are all the responsibility of headquarters telecom management. Voice equipment, including key systems, PBXs and associated telephone equipment, accounts for 58% of equipment spending. An additional 25% is spent for data communications equipment, including modems, multiplexers, front-end processors, voice/data workstations and data PBXs. Administrative equipment comprises 17% of budget and includes automatic call distributors, local area networks, facsimile, voice messaging, call accounting and the like.

The Fortunes' reported 1985 equipment budgets are realistic. Extrapolating their reports and using the 20/80 rule (20% of the market accounts for 80% of dollars) yields a total market of $13 billion. Dataquest (San Jose, Calif.), which tracks 34 related mar-

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Table 1 Composite of top 9 non-affiliated interconnects

	Sales ($000,000) Est. 1985	Actual 1984	Actual 1983
Telecom Plus International	$300.00	$160.00	$106.0
RCA Telephone Systems Div.	105.0	102.4	102.5
Universal Communications Systems	81.0	64.9	52.6
Communications Corp of Am. (CCA)	72.0	62.1	46.1
Honeywell Communications Services	73.0	65.0	56.0
Norstan Communications Systems	100.0	31.8	25.3
Hankels & McCoy/Telecom Systems	35.0	34.0	26.0
Jarvis Corp.	35.0	26.7	24.5
Standard Telecommunications Systems	23.0	20.0	18.0
	$824.0	$566.9	$457.0

estimated by Telephony
(a) includes Compath
(b) includes revenues of Norstan Information Services and Electronic Engineering Co.

Table 2 Dominant 1984 PBX Manufacturers versus major interconnect distribution

Dominat PBX manufacturers (and 1984 PBX lines shipped)

	AT&T—804,000	Northern—601,715	Rolm—661,000	Mitel—446,756	NEC—360,000	GTE—245,970	Siemens—176,700	Intercom—132,000	Fujitsu—112,248	Oki—110,700	Harris—96,837	Ericsson—92,400
9 Major Non-affiliated												
Communications Corp. of Am.		X			X							
Hankels & McCoy/Telecom Systems		X		X	X	X	X			X		
Honeywell Comm. Services Div.						X	X					Xa
Jarvis Corp.							Xb					
Norstan Communications Systems			X									
RCA Telephone Systems Div.				X								
Standard Telecom Systems		Xc		X	X					X		
Tel-Plus of Telecom Plus					X		X					
Universal Comm Systems					X							
Regionals' Subsidiaries												
Advanced Systems	X	X			X			X	X			
Ameritech Communications	X	X			X							X
Bell Atlanticom Systems	X				X			X				
Firstel Information Systems					X			X				
Nynex Business Info. Systems		X				X		X				
PacTel Communications		X								X		
Southwestern Bell Telecom		X			X			X	X			
Independent Affiliates												
Centel Business Systems		X	X	X			X				X	
Executone							X				X	

Sources: PBX line shipments, Northern Business Information (New York, N.Y.) interconnects and PBX product lines, Telephony Publishing Corp.
(a) Delta-Plex 2000, Honeywell Ericsson Development Co.
(b) Siemens FD192
(c) Maintain and Upgrade SL-1

kets, estimates the 1985 equipment market at $13.7 billion. Using the above groupings, 63% accrues to voice equipment; 20% to data communications equipment and 17% to administrative equipment.

Consolidation

Barring manufacturer sales, only two dozen interconnect companies currently are positioned for serious competition for the market offered by the Fortunes and major hospitals and universities. Among them are the subsidiaries of the seven regional holding companies, which posted first-year 1984 sales of about $800 million. Centel Business Systems, one of the largest Independent holding company affiliates, had 1984 sales of $215 million, up 12% from $192 million in 1983. Sales for the nine largest interconnects that are not manufacturer or holding company owned neared $600 million in 1984 and will easily pass $700 million in 1985 (Table I). These 22 interconnects are parent to 20% of the estimated 5000 interconnect locations in the U.S.

Small interconnects face tough competition that is going to get tougher. Operating margins are shrinking and their window of opportunity is closing. Wishful thinking about the demise of Centrex has been superceded by concern for its new appeal. Full service retail distribution channels, offering small system installation and maintenance, pose a grave new threat.

Three of today's top 25 interconnect competitors are full service retail distributors. Tandy Corp. now has 130 Radio Shack Telephone Stores and Tandy recently introduced its own key system, designed for small business, which can accommodate up to 8 lines and 36 stations. United Telecom now has more than 30 AmeriSource stores, with more openings scheduled. Although AT&T has its own stores, there already are at least 150 Sears Business System Centers that offer AT&T equipment. Tandy, Sears and AmeriSource offer a range of voice, data and administrative equipment designed for small and medium-sized businesses.

Between the extremes are established interconnects doing business in limited areas of the 12 key interconnect states in the U.S. Among them are Gray Communications in Pennsylvania, Telespec Voice & Data Systems (formerly Long Island Sound Systems) in New York, and J. Livingston Co. and Chicago Communications in Illinois. Many are diversified. Chicago Communications also installs and maintains cellular and private two-way radio equipment and has established paging divisions in six Florida metropolitan areas. Many have unexpected partners. J. Livingston Co. markets Centrex service for Illinois Bell and recently completed a project in Tucson, Ariz. with GTE. All are in enviable positions. They can opt to expand, consolidate their current base or entertain buy out suitors.

The fierce competition for a greater share of the large user market has prompted a flurry of interconnect mergers and manufacturer and interconnect alliances. Thomson-CFS has a stake in Communications Corp. of America; Siemens in Telecom Plus International's Tel-Plus. Norstan is in the process of acquiring Electronic Engineering Co., a deal that will give Norstan

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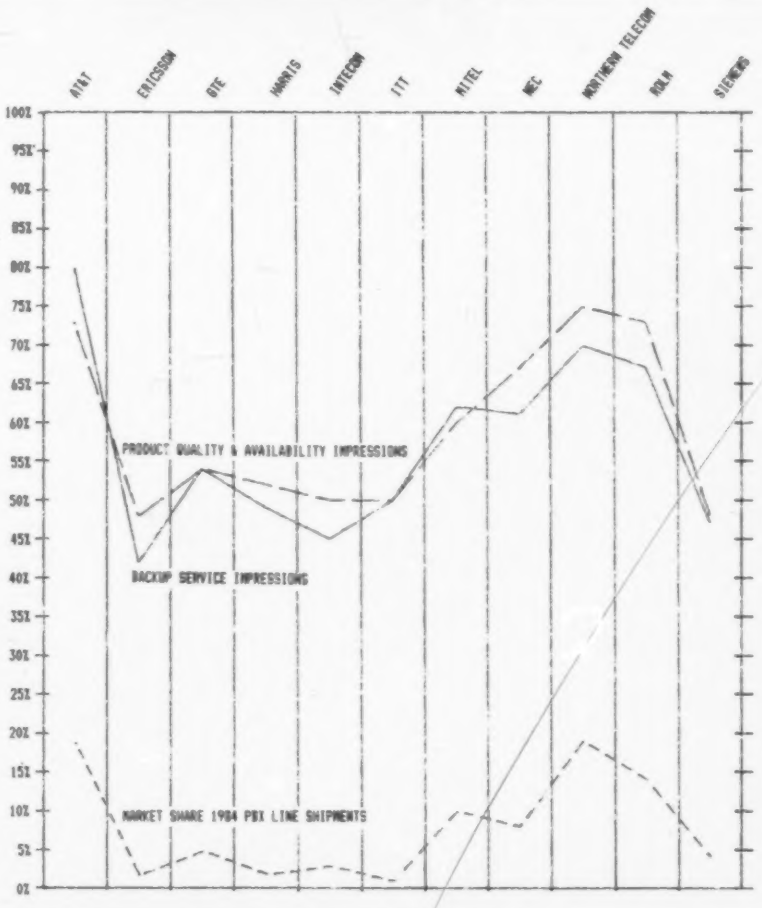
Figure 4 Fortune headquarters impressions of major PBX competitors and 1984 PBX line shipments market share of competitors



Manufacturer impression rated 3-excellent, 2-average, 1-poor. Ratings are based on total points as percent of maximum points (respondent Base x 3).

Shipments: Northern Business Information (New York).

$100 million in 1985 combined sales. Bell Atlantic acquired an established interconnect base in the booming Southwest with the purchase of Texas-based Telecommunications Specialists, Inc. Commtel (Charlotte, N.C.) has been acquired by BellSouth. BellSouth projects its nine-state area will be an $815 million market by 1990.

None of the major interconnects or equipment manufacturers have pinned their hopes for market share on growth alone. There are no signs of explosive growth or runaway demand, as small interconnects had hoped. Each expects a share of growth, of course, but the major objective is a greater share of the billions of dollars spent each year by users of large interstate and intrastate networks.

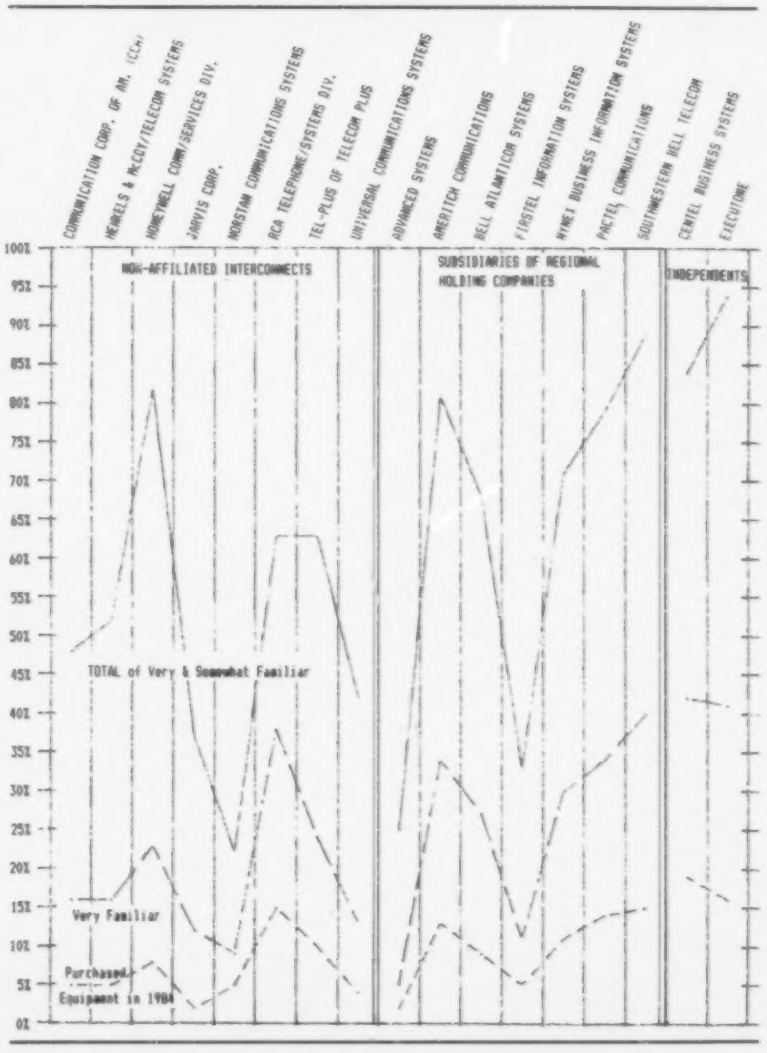
Where the money is

Willie Sutton claimed he robbed banks only because "that's where the money is." Large business users are where the money is in today's market. Large users are generally concentrated in limited geographic areas and the major interconnects and manufacturers are converging on these commercial centers.

Twelve states are the mother-lode of interconnect. New York, Pennsylvania, Illinois, Texas and California account for 40% of the business phones in the continental U.S. Seven additional states complete the "dazzling dozen" of interconnect. Four of the seven—Connecticut, Maryland, Massachusetts and New Jersey—join New York along the path of corporate headquarters that curves along the U.S. northeast corridor. Ohio and Michigan, together with Illinois, form the hub of the midwest industrial belt. Florida, Texas and California offer booming economies and a base of expansion into nearby states' commercial pockets.

The five-state Midwest area, for example, has more phones than any country except Japan. It has more computer sites than any other region—19% of the U.S. total. If California were an independent nation, its economy would rank eighth on the world scale, just behind Italy and ahead of Canada. One in 10 households in California already has a home computer. New York is home to the largest number of Fortune headquarters in the U.S. User concentration also is true of sparsely populated states. In Colorado, 16% of business customers account for 87% of business long distance revenues. Just 3% of business customers bring in 47% of toll revenues.

Figure 5 Fortune headquarters familiarity with major U.S. interconnects and whether purchased equipment from them during 1984



Base: 128 Fortune corporations (92 industrials; 36 service organizations).

Interdependence

All of the major interconnects are positioned for competition in the voice/data market. A key factor in their growth has been distribution of voice equipment. Voice equipment and network services still dominate user budgets.

Irrespective of distribution channels, the voice and data communications market is dominated by relatively few suppliers. Northern Business Information (New York) is one of the more thorough trackers of PBX and key system shipments. It estimates 4.6 million PBX lines were shipped in 1984; five

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manufacturers account for 80% of shipments (Figure 2). The pattern is the same in the key system market: with seven manufacturers handling 80% of the shipments (Figure 3).

Large users, however, have made distribution channels as important as the equipment manufacturer. The major interconnects have successfully penetrated the voice/data market of the major hospitals, universities and the Fortunes. This fact is not lost on manufacturers. Communications Corp. of America, for example, counts Hyatt Hotels, Amoco Oil, Federal Express and American Express among its customers. Universal Communication Systems' customer-base includes the universities of New Mexico, Oklahoma and Tennessee and American Electric Power. Henkels and McCoy/Telecom Systems already had installed more than 12 million telephones and associated hardware for telephone operating companies prior to divestiture, in facilities ranging from small to big business, hospitals, universities and government agencies.

Large user requirements compel far-ranging manufacturer and interconnect alliances. A key system customer rarely generates major peripheral equipment sales. Large users, however, want more than just a switch. Users are demanding offers of end-to-end equipment and service. This demand will force the Federal Communications Commission (FCC) to relax some Computer II restrictions on the Bell local exchange companies to allow network as well as interconnect solutions to communications needs. The successful interconnect in today's market is selling planning capability, not just hardware.

The Fortune participants in Telephony's 1985 survey rated 30 voice and data communications manufacturers, based on their impression of the vendors' overall product quality and availability, backup service and management. The impressions are indicative only of the vendors marketing success. But comparison of large user impressions of the major PBX vendors and 1984 shipments shows correlation between user perceptions and actual performance (Figure 4).

The participants also were asked how familiar telecom professionals in their nationwide organization are with major interconnects and whether they had purchased equipment from any during 1984. Again, the results are indicative only of marketing success but show correlation between user perceptions and actual performance (Figure 5).

The results underscore established links between major PBX manufacturers and interconnects (Table 2). Links also are being established with major manufacturers of data communications and administrative equipment. Distribution of administrative equipment from manufacturers such as Summa Four is as common to the major interconnects as equipment from IBM, Rixon, Codex, General Datacom, Micom, Paradyne and Timeplex.

Like it or not, the interconnect market is consolidating, following the same pattern as that of the telephone operating companies. There were literally thousands of small operating companies at the beginning of century. By 1985, 98% of U.S. lines were served by the regional holding company telephone groups and the top 20 Independents. Unlike regulated markets, open markets swiftly punish inefficiency.

Current user impressions and shipments lull few suppliers into complacency. Corporate top management wants results for the money spent on in-house telecommunications. Budgets and staff size increased 10% to 15% annually during 1982-1984 and will remain at similar levels over the 3 years from 1985-87. Internal strength now counteracts backup threats. Though backup still ranks among the primary purchase considerations, its margin of lead over product features and life cycle and initial costs has plunged (Figure 6). Purchase by intimidation is becoming extinct.

Corporate top management is demanding that telecom management use the means and authority conferred to carry out operational responsibility. That also has resulted in a truce in the less-publicized war for office supremacy.

Neither telecom nor MIS groups will win the battle to dominate the other in the integrated environment. The sniping of these groups in the past few years has prompted top management to have them report on a separate but equal

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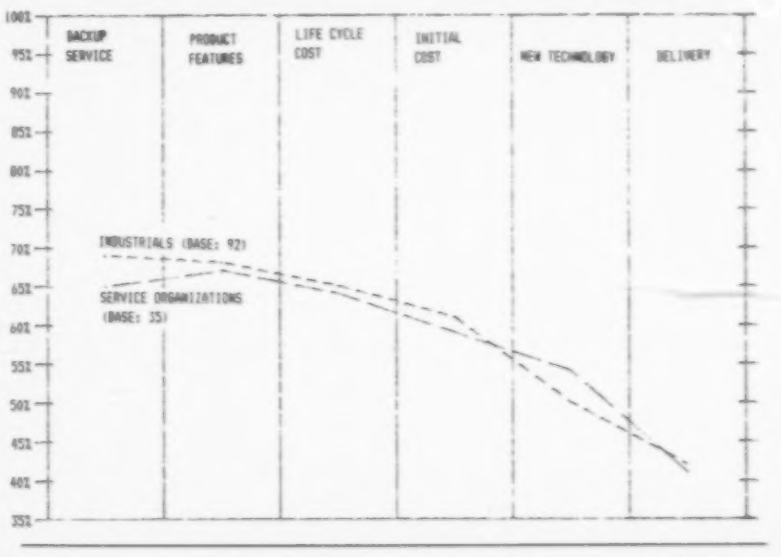
Figure 6 Order of importance of purchase criteria



Corporate headquarters telecom management rated each category on a scale of one to six, where six (6) was most important. Ratings were not duplicated. Percentages are based on maximum possible points that could be scored in each category. Maximum possible category points among industrials is 552 (92x6); service organizations, 210 (35x6).

basis when not formally consolidated.

Determination of need for new, replacement and additional equipment, its evaluation and vendor selection are all completed by telecom management before approval of capital expenditures is sought (Figure 7). Executive committees and corporate top executives review and approve capital expenditures—as guardians of the corporate coffer.

They do not second-guess vendor selection. Promotion directed to corporate top executives, however, may elicit the question, "Is XYZ Co. being considered?" The 3-year capital request horizon ensures that qualified vendors are reviewed throughout the procurement cycle.

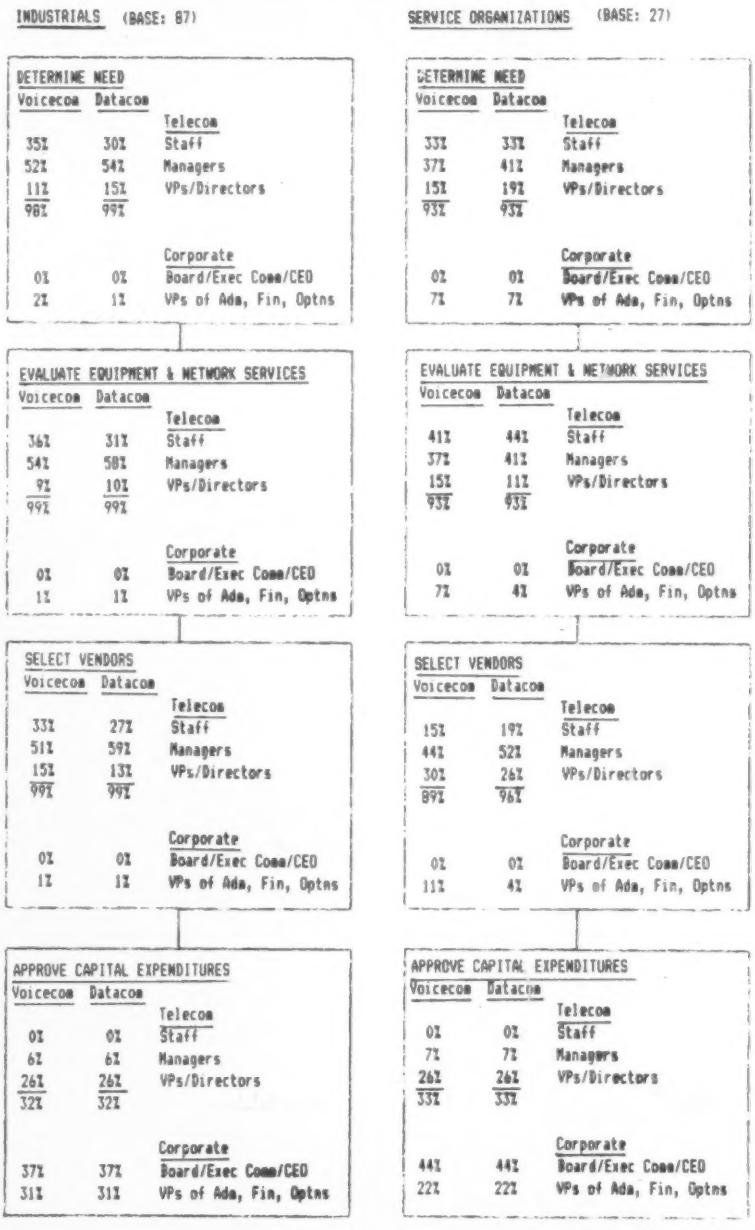
The bottom line

Corporate top management control over capital expenditures may be circumvented but only temporarily and at great peril.

The telecommunications director of a large user wields a multi-million dollar budget, and has the power to cause acute corporate embarrassment. For example, the Chicago Mercantile Exchange has filed suit against its former telecommunications director, saying it was bilked out of $250,000. The alleged act was part of a $625,000 transaction that involved the purchase and maintenance of 5308 telephone handsets and 5308 confidencers (microphones that screen out extraneous noise). The suit charges the former director set up his own corporation to act as a middleman between the supplier and the exchange.

The telephone system in the 18-month old Mercantile building, however, meets rigid specifications established when the facility was built. And a membership survey taken earlier this year indicated that the telephone equipment in question got above average marks from users. Therefore, the system of checks and balances did not break down at the technical level, where deviations would be discernible to the professionals involved in determination of need, evaluation and vendor selection. The fancy footwork was in the area of capital expenditures—the fiduciary responsibility of corporate top management. The dark-side of their responsibility is cognizance of the more devious human activities.

Figure 7 Telecom purchasing hierarchy of Fortune companies



The bottom line for equipment and network service suppliers is that corporate telecommunications management is clearly going about its business with the full backing of corporate top management. And their budgets give them awesome power in determining the future of vendors. □